

KIRKS ESPRESSO (PWSNO 1280250) SOURCE WATER ASSESSMENT REPORT

June 26, 2001



State of Idaho Department of Environmental Quality

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SOURCE WATER ASSESSMENT FOR KIRKS ESPRESSO

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your particular drinking water source is based on a land use inventory within a 1,000 foot radius of your well, your water quality history, construction characteristics associated with your well or wells, and site specific sensitivity factors associated with the aquifer your water is drawn from.

This report, *Source Water Assessment for Kirks Espresso* describes the public drinking water source, potential contaminant sites located within a 1000-foot boundary around the drinking water source, and the susceptibility (risk) that may be associated with any associated potential contaminants. This assessment, taken into account with local knowledge and concerns, should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should not be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Potential Contaminant Inventory. The Kirks Espresso public water system, located near the intersection of State Highway 53 and Prairie Avenue, serves the espresso shop and two homes in a rural residential area. Drinking water for 4 connections is supplied by a 260-foot deep well drilled into a granitic formation on the northern edge of the Rathdrum Prairie. No treatment of the water is required before distribution. Potential contaminant sources documented inside the 1000-foot boundary around the well include oil drums stored inside the pump house for a backup generator. The locations of septic systems for houses inside the 1000-foot boundary are not on record in the public water system file.

The map on page 5 of this report shows the well location, the 1000-foot boundary and approximate locations of roads, buildings and the gas drums relative to the well. The well is about 5 feet from the property line, and is near an unpaved private road.

Table 1. Kirks Espresso Potential Contaminant Inventory

Map ID	Source Description	Potential Contaminants	Source of Information
1	Gas Drums	SOC, VOC	1999 Sanitary Survey

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

USGS= United States Geological Survey, PWS = Public Water System

Water Quality History. Kirks Espresso is required to monitor quarterly for bacterial contamination. Total coliform bacteria were present in distribution system samples drawn January and June, 1995, and in January, February and April 1994. Results of annual nitrate tests range 1.30 to 3.30 mg/l The Maximum Contaminant Level (MCL) for nitrate is 10 mg/l.

Well Construction. The Kirks Espresso well was drilled in August 1974 to a depth of 260 feet. The 6-inch steel casing is 22 feet deep, terminating in a layer of hard white granite. The surface seal extends about 18 feet below ground surface. Current Idaho Department of Water Resources standards for well construction require the wall thickness of a six-inch casing to be a minimum of 0.280 inches. The wall thickness of the Kirks Espresso well casing is not reported on the well log. The well is not in a flood plain. Improvements to the well completed in July 1995 included extension of the well casing, installation of a pitless adapter, and a vented, watertight well cap.

Table 2. Selected Characteristics of Kirks Espresso Well

Well	Total Depth (ft.)	Depth to First Ground Water (ft)	Static Water Level (ft)	Depth of Surface Seal (ft)	Depth of Casing (ft)
Well #1	260	48-51	120	18	20

Well Site Characteristics. Soils in the 1000-foot zone around the wells are generally poorly drained to moderately well drained, providing some protection against migration of contaminants toward the well. Soils above the water table are predominately granite and decomposed granite according to the well log.

Susceptibility to Contamination. A susceptibility analysis DEQ conducted on the Kirks Espresso well, incorporating information from the public water system file, and from the well log, ranked the well highly susceptible to synthetic organic compounds and volatile organic compounds because of the gas drums stored in the pump house. Susceptibility to inorganic chemical and microbial contaminants is moderate. The susceptibility analysis worksheet for your well on page 6 of this report shows how your well was scored. Formulas used to compute the final susceptibility scores are shown on the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For Kirks Espresso source water protection activities should focus on bringing the well into full compliance with the Idaho rules for Public Drinking Water Systems as outlined in the 1999 Sanitary Survey.

- The generator needs to be stored in a tray which will contain any fuel or lubricants. The gas drums need to be removed from the pump house and stored at least 50 feet from the well.
- No vehicles may be stored within 50 feet of the well. No herbicides, pesticides or fertilizers may be used or stored within 50 feet of the well.
- The conduit entrance to the well cap needs to be repaired.

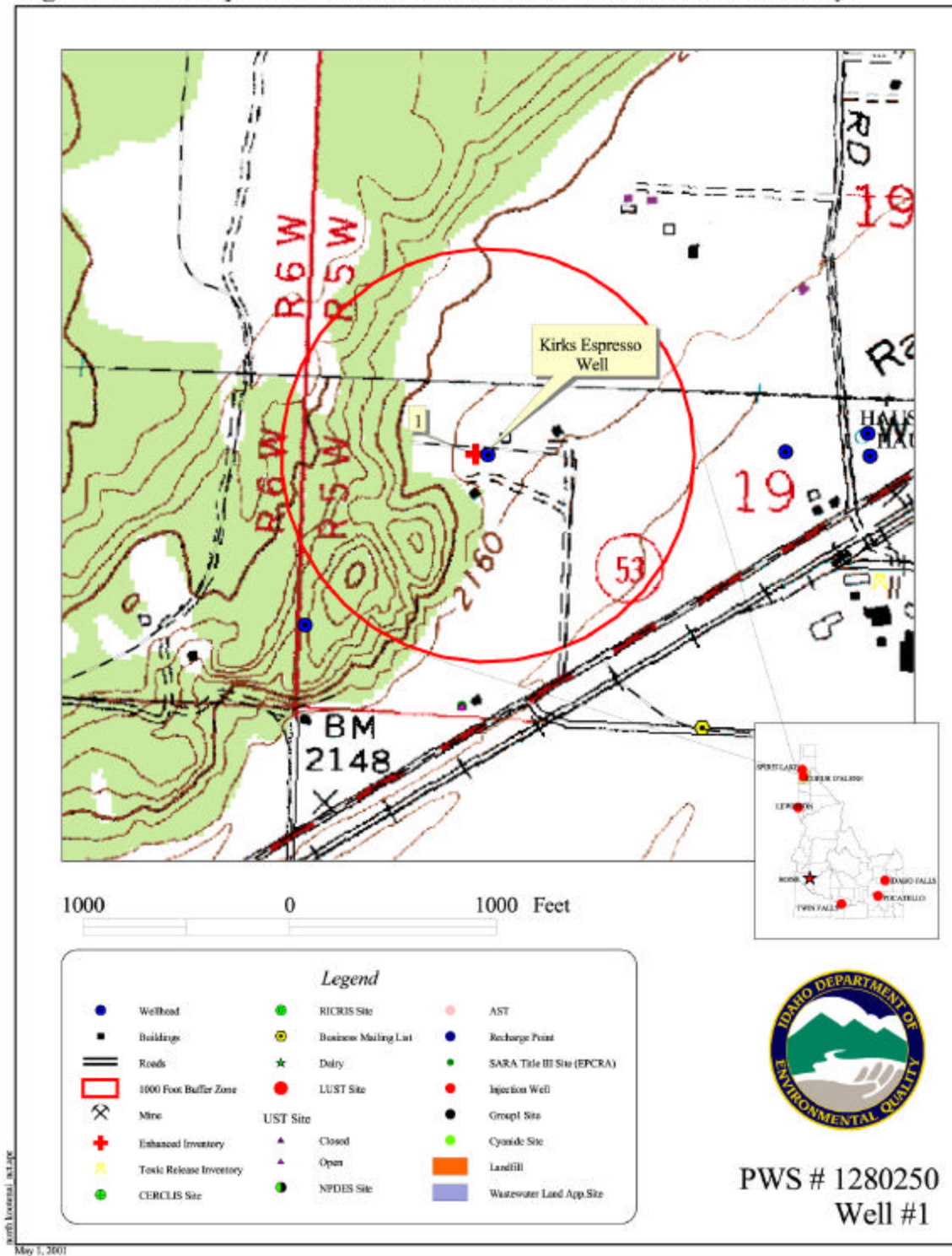
It is also important to keep pets, livestock and wildlife away from the well. Because Kirks Espresso doesn't have direct jurisdiction over the entire 1000-foot protection zone around its well, it will be important to form partnerships with neighbors, and public agencies to regulate land uses that can degrade ground water quality. The goal of source water protection is to maintain current water quality for the future despite the changes we can expect with population growth in North Idaho.

For assistance in developing source water protection strategies please contact Tony Davis at the Coeur d'Alene Regional DEQ office at 208 769-1422.

DEQ website:

<http://www.deq.state.id.us>

Figure 1. Kirks Espresso Delineation and Potential Contaminant Inventory.



Attachment A

Kirks Espresso Susceptibility Analysis Worksheet

Ground Water Susceptibility Analysis

Public Water System Name :

KIRKS ESPRESSO

Well# :

WELL #1

Public Water System Number :

1280250

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1. System Construction		SCORE			
Drill Date	8/5/74				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	UNKNOWN	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		2			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		3			
3. Potential Contaminant / Land Use - Sanitary Setback		IOC	VOC	SOC	Microbial
		Score	Score	Score	Score
Land Use Sanitary Setback	Agricultural	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	YES Gas Drums in Pumphouse	NO	YES	YES	NO
Total Potential Contaminant Source/Land Use Score - Sanitary Setback		2	2	2	2
Potential Contaminant / Land Use - 1000-foot radius					
Contaminant sources present (Number of Sources)	NO	0	0	0	0
(Score = # Sources X 2) 8 Points Maximum		0	0	0	0
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
4 Points Maximum		0	0	0	
1000-foot radius contains or intercepts a Group I Area	NO	0	0	0	0
Land use 1000-foot radius	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - 1000-foot radius		0	0	0	0
Cumulative Potential Contaminant / Land Use Score		2	2	2	2
4. Final Susceptibility Source Score		6	6	6	6
5. Final Well Ranking		Moderate	*High	*High	Moderate

* Automatic High ranking due to presence of potential contaminants inside the Sanitary Setback zone.

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- > 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.